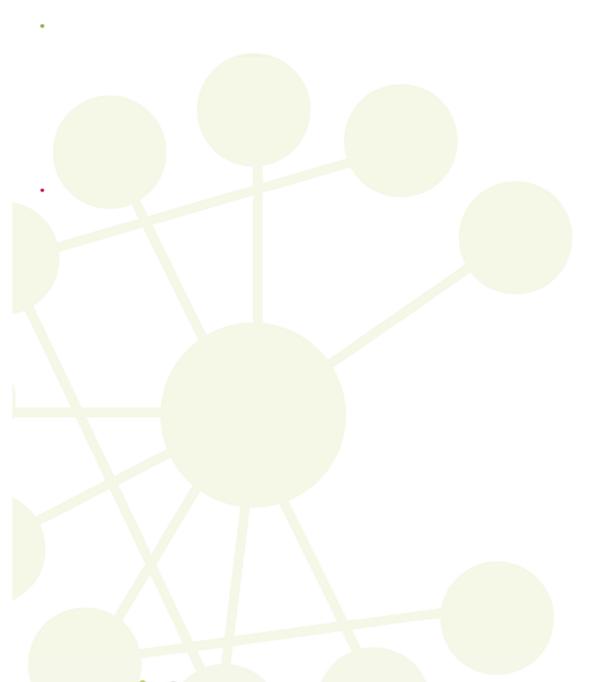


Pre-post Questionnaire









Information about the report/WP

WP N° 3

Publication date: 31/01/2018

Report/WP title: Pre-post Questionnaire

Project Information

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Executive Summary

We developed a questionnaire for the data collection in the pre-post study. The aim of this deliverable is for stakeholders and interested parties to get an insight into our evaluation instruments. Therefore we illustrate the purpose of the data collection and provide the implemented questionnaires.

1. Main report

1.1 Pre- & Post-Questionnaires

The quality of the quantitative evaluation of the MaSDiV project will be assured with a standardised pre-post design. The aim of the evaluation is to gain insight into the key criteria for effective policy implementation of the targeted content. Therefore the evaluation focusses especially on IBL as an approach for addressing achievement-related diversity, implementing real-life contexts and incorporating intercultural learning.

Evaluation questions are motivated by the policy measure and its aims, ensuring the assessment of the course effects on teachers' competences:

- 1. How do teachers' beliefs and self-efficacy about using IBL to address diversity, about showing the relevance and implications of science and promoting fundamental values develop during the CPD course and how are they reflected in the teachers' practices?
- 2. What is the effect of perceived incriminating external factors, such as e.g. shortness of time, perceived restrictions of autonomy or discipline problems in class, on the acceptance and implementation of the CPD contents?
- 3. Which activities of the CPD support the development of teachers?

To ascribe changes in the teachers' competence to the effects of the CPD two teacher questionnaires were designed. Motivated by the practical experiences with systematic comparison tests such as PISA and TALIS, a four-point Likert-scale was implemented whenever suitable. The categories were adapted to the questions and reflect agreement (strongly agree, disagree, agree and strongly agree) or frequencies (Never or hardly ever, some lessons, most lessons and almost every lesson). The questionnaire does not include any open questions to ensure feasibility.

The MaSDiV implementation ensures the participation group of at least 50 teachers per country within the field trials. The partners have committed to these numbers in order to ensure valid conclusions on the measure's effects. The pre-questionnaire needs to be implemented right at the beginning of the CPD course. To allow valid conclusion and a high participation rate, the post-questionnaire needs to be used right at the end of the course.

The first section of the questionnaire (questions 1 to 9) contains background variables used as independent variables in the evaluation process. These consist of age, gender and teaching experience in order to describe the participation group, as well as their previous knowledge, need for CPD courses, and perceived context factors teachers might experience in their everyday teaching. Since the CPD content is valued from policy makers and the







society in general in the partner countries, questions about social desirability are also included to get a realistic view on teachers' self-efficacy, beliefs and practices.

In the second part (questions 9 to 11) we collect information about the constructs stated above. Teachers are asked about their perceived effectiveness in aspects of their teaching approaches, as well as their beliefs about using IBL to address diversity, about showing the relevance and implications of science and promoting fundamental values. Furthermore teachers are asked about their current teaching practices in relation to IBL, real-life contexts and multicultural classroom settings.

Some of the background variables are excluded from the post questionnaire due to stability. The remaining constructs such as self-efficacy, beliefs and the reported practices remain in order to ensure evaluation of the measure's effectiveness. Items on the overall CPD experience as well as on the perceived effectiveness of the CPD complete and round off the evaluation instruments to meet the requirements.

1.2 Student Questionnaire

An important feature of the MaSDiV project is the student questionnaire. The aim of this questionnaire is to assure to what extend the targeted content of the CPD has an impact on the instruction and, thus, student learning. To achieve this purpose, we designed a short student questionnaire to gather information on students' motivation, interest and perceived teaching practices.

The evaluation questions reflect the aims of the policy measure and test important hypotheses of its impact.

- 1. How do teachers' beliefs and self-efficacy about using IBL to address diversity, about showing the relevance and implications of science and promoting fundamental values impact students' motivation and interest in math or science?
- 2. To what extend do students feel valued in class with teachers, who value addressing diversity?
- 3. What is the relation of teachers' self-reported practices and students' perceived practices?

In line with other student questionnaire, we designed a short instrument that can be implemented in a regular lesson. The wording of the questions is adapted to the level of middle school students to increase the validity of any conclusion. We also used 4-point Likert scale to indicate agreement or frequencies and avoided any open questions.

During the field trials N = 50 teachers per country take part in the CPD. In the penultimate session of the CPD each teacher gets invited to take part in the student survey. We assure teachers to get additional feedback on their own instruction compared to the national and the European sample as an additional incentive. Additional to the set of questionnaires, we provide a specific guideline for the teachers, how they should use the questionnaire in their classes. The teachers are asked to bring back the questionnaires to the national partners in the following session of the CPD.







The first section of the questionnaire (questions 1 to 3) contains background variables used to describe the classes in more detail. These consist of age, gender and their cultural background. In the second part (questions 4 and 5) we collect information about the fulfilment of students' basic needs (autonomy, competence, relatedness) that are key features for developing motivation. We assume that IBL should support the experience in all three key areas. We furthermore included questions on the perceived enthusiastic teaching and interest in science or mathematic as key outcomes of school. The final part (question 6) contains the same practices from the teacher questionnaire to get more evidence on the validity of teachers' expressions.

In the following you will find the questionnaire.







2. Appendices

2.1 Appendix 1: Pre-Questionnaire

Dear teachers,

Thank you very much for agreeing to participate in our study.

Within the frame of the MaSDiV project, teachers in Cyprus, Germany, Malta, the Netherlands, Turkey and Spain participate in a professional development course about opportunities for inquiry-based learning in diverse teaching contexts. The aim of this survey is to get insight into teachers' prior experiences and attitudes towards the target topics across Europe. With your help, we can better understand the current educational situation in your country, and therefore have a broad basis for recommendations. The completion of the survey will take about 20 minutes. Be assured that all your answers will be handled confidentially and processed anonymously. All your responses are voluntary.

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At the end of the professional development program we will ask you to fill in another questionnaire. In order to be able to match the questionnaires you are asked to fill in the following code: code:

- first letter of your first name
- first letter of your mother's first name
- second letter of your mother's first name
- Day of your birthday.

Example:

First name: Max Mothers first name: Christiane Max's birthday: 12. May

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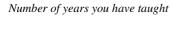
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None

5. Please indicate to which extend you had any form of formal training on the following topics.

			During Teacher Education		Professional elopment
1)	Inquiry-based learning (e.g. student-centered & investigative instruction)				
2)	Mixed-ability classrooms				
3)	Culturally responsive teaching (e.g. using diverse cul characteristics & experiences in teaching)	tural			
4)	Promoting fundamental values (e.g. democratic values, respect for human dignity)				
6.	For each of the areas listed below, please indic professional development.	eate the deg	ree to which yo	ou currently	need
		No need at present	Low level need	Moderate level need	High level need
1)	Approaches to individualized learning				
2)	Inquiry-based learning (e.g. student-centered & investigative instruction)				
3)	Teaching in a multicultural or multilingual setting				
4)	Teaching in a class with mixed-ability students				
5)	Promoting fundamental values (e.g. democratic values, respect) through science or mathematic				
6)	Using digital resources (e.g. smartphones, online forums)				
7.	Please indicate at which level(s) you have teac < NL and DE please use further distinction for Leve		nsibilities at yo	our school.	
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8.	For the remainder of the questionnaire, please professional development course. Please choo			ill mainly in	nplement the
1)	Physics				
2)	Chemistry				
3)	Biology				
4)	Mathematics				
5)	<integrated> Science □</integrated>				

Your daily school life





9. Thinking about your own daily school life, please indicate the extent to which you **agree or disagree** with each of the following statements.

		Strongly disagree	Disagree	Agree	Strongly agree
1)	In the subject that I teach I feel free to decide what content to focus on.				
2)	National curricula consider using social relevant contexts in class.				
3)	It has happened that I was not fair to a student in the past.				
4)	During class I do not have enough time to discuss social relevant contexts.				
5)	When talking to my students I always listen carefully to what the students says.				
6)	I have not enough time for preparing student-centered lessons.				
7)	In my daily teaching I am free to choose, which contexts should be addressed during my instruction.				
8)	I am always friendly and polite to my students.				
9)	In my country policy prioritises the need to address diversity in classes.				
10)	In my classes, there are a lot of students whose first language is different from the language of my instruction.				
11)	At my school, emphasis is placed on using social relevant context.				
12)	National curricula consider diversity in classes.				
13)	I do not incorporate inquiry-based learning, because it is often disrupted by students who lack discipline.				
14)	In my country policy prioritises the need to address social relevant issues in classes.				
15)	Some students with behavior problems make it difficult to carry out inquiry-based learning.				
16)	In my school, emphasis is placed on dealing with diversity.				
17)	In my school, teachers usually exchange learning materials.				
18)	In a discussion with my students I always remain objective and stick to the facts.				
19)	In my school, teachers have discussions about how to teach certain topics to certain students.				
20)	In my classes, students differ greatly in their cognitive abilities.				
21)	In my school, teachers work together to plan some lessons.				





10. To what extent do you **agree** with the following statements?

	I feel confident that	Strongly disagree	Disagree	Agree	Strongly agree
1)	I can design activities that allow students of diverse ability levels to test out their own ideas.				
2)	I am able to help students of a wide range of abilities to see the relevance of the content to learn.				
3)	I can incorporate issues relevant to society in my teaching.				
4)	I can facilitate classroom discussions in which even low-achieving students can engage.				
5)	I can develop teaching activities addressing issues relevant to society.				
6)	I can use inquiry-based activities to engage students in dealing with issues relevant to society.				
7)	I can design learning activities situated in different cultural contexts.				
8)	I can use inquiry-based activities to engage all my students in learning.				
9)	I can plan practical / modelling activities that support all students in their learning.				
10)	I can adapt my teaching to suit students' different cultural background.				
11)	I can build on students' cultural background in my teaching.				
12)	I can facilitate classroom discussions about issues relevant to society.				



11. To what extent do you **agree** with the following statements?

		Strongly disagree	Disagree	Agree	Strongly agree
1)	Classroom activities have to account students' cultural backgrounds.				
2)	Situating instruction in every day-life contexts can help engage all students in learning.				
3)	Science and math instruction needs to address issues relevant to society to foster students' values.				
4)	Using different cultural approaches support learning for all students.				
5)	Encouraging students to explain their own ideas can support students with different ability levels in learning.				
6)	Inquiry-based activities are well suited to support all students in their learning.				
7)	Collaborative activities support an exchange between students of different cultural backgrounds.				
8)	Using contexts relevant to society allows students to develop deeper understanding.				
9)	Instruction needs to provide students with opportunities to discuss issues relevant to society.				
10)	Situating activities in contexts relevant to society will help improve students' ability to make justified decisions.				
11)	Having students carry out practical / modelling activities can provide an opportunity to learn for students of all ability levels.				
12)	Having students design their own experiments / investigations creates learning opportunities for all students.				





12. How often do the following activities **take place** in your lessons?

	In my teaching	Never or hardly ever	Some lessons	Most lessons	Almost every lesson
1)	I show the students how this subject is relevant to society.				
2)	the students spend time doing practical activities.				
3)	I use a variety of contexts to engage students with diverse abilities.				
4)	I engage as many students as possible in discussing their own ideas with each other.				
5)	I relate to the cultural background of my students.				
6)	my students discuss controversial issues relevant to society.				
7)	I provide different levels of support to students of different ability levels as they do practical activities.				
8)	I address cultural values and expectations of students.				
9)	I help my students to understand the world outside school.				
10)	the students do experiments/ investigations/ modelling by following my instructions.				
11)	I use contexts to promote fundamental values (e.g. democratic values).				
12)	the students are involved in class debate or discussions.				
13)	the students have the chance to choose their own experiments/investigations.				
14)	the students are given opportunities to explain their ideas.				
15)	I allow every student to define their own problem-solving strategies and develop their own explanation.				
16)	the students do experiments/ investigations to test out their own ideas.				
17)	the students design their own experiments/ investigations.				
18)	I explain the relevance of this subject to our daily lives.				
19)	I use contexts relevant to society.				
20)	I use contexts from different cultures.				
21)	the students have discussions about the topics.				
22)	the students draw conclusions from experiments/ investigations/ modelling they have conducted.				

Thank you for your support!!!







2.2 Appendix 2: Post-Questionnaire

Dear Teachers,

Thank you again for agreeing to participate in our study.

Within the frame of the MaSDiV project, you participated in a professional development course about inquiry-based learning in diverse teaching contexts. The aim of this survey is to get insights, how you perceived the professional development course and how it affected you. With your help, we can further improve the professional development course and provide recommendations for teachers all across Europe. The completion of the survey will take about 20 minutes. Be assured that all your answers will be handled confidentially and processed anonymously. All your responses are voluntary.

Please check your ans	wers lil	ke this:				
			X			
Please correct your an	swers 1	ike this	s:			
					X	

In order to be able to match the questionnaires you are asked to fill in the following code:

- first letter of your first name
- first letter of your mother's first name
- second letter of your mother's first name
- Day of your birthday.

Example:

First name: <u>Max</u> Mothers first name: <u>Christiane Max's birthday</u>: <u>12</u>. May

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Your CPD experience

4. To which extent do you **agree** to the following statements?

Note: CPD stands for Continuous Professional Development and refers to the course you just participated in.

		Strongly disagree	Disagree	Agree	Strongly agree
1)	I enjoyed the CPD.				
2)	The CPD made me change my teaching practice.				
4)	I got new input for my teaching.				
5)	I learned a lot of new things in the CPD.				
6)	The covered topics were relevant to me.				
7)	I successfully manage to apply the CPD contents in my everyday teaching.				
8)	The CPD was well planned and interactive.				
9)	I would recommend this CPD to my colleagues.				
10)	The CPD supported collaboration and exchange with other teachers.				
11)	The collegial professional exchange during the CPD promoted my individual learning.				
12)	This CPD experience will be useful in my work.				
13)	During the CPD I was provided with teaching materials.				
14)	I applied the teaching materials from the CPD in my everyday teaching.				
15)	I developed new teaching materials during the CPD.				





5. Please indicate to which extend the CPD course **covered** the following activities.

		Little	Somewhat	Much	A great deal
1)	Introduction to inquiry-based learning (IBL) and discussion about the relation between IBL and diversity in achievement				
2)	Introduction and discussion of teaching methods that support IBL and involve all students				
3)	Discussing achievement-related diversity with sample work from students				
4)	Design and preparation of a lesson addressing achievement- related diversity				
5)	Introduction to context-based teaching				
6)	Discussion of concrete examples of contexts				
7)	Discussion of the effective use of contexts and possible drawbacks				
8)	Exploring the connection between contexts, socio-scientific issues and fundamental values				
9)	Design and preparation of a lesson using contexts				
10)	Discussion about aspects of cultural diversity that are relevant to science / math instruction				
11)	Exploration of the cultural roots of Science and Mathematics and the impact on our daily teaching				
12)	Discussion of ways to address cultural differences effectively and possible drawbacks				



6. Please indicate the **significance** of each activity for your teaching practice.

		None	Low	Moderate	High
1)	Introduction to inquiry-based learning (IBL) and discussion about the relation between IBL and diversity in achievement				
2)	Introduction and discussion of teaching methods that support IBL and involve all students				
3)	Discussing achievement-related diversity with sample work from students				
4)	Design and preparation of a lesson addressing achievement-related diversity				
5)	Introduction to context-based teaching				
6)	Discussion of concrete examples of contexts				
7)	Discussion of the effective use of contexts and possible drawbacks				
8)	Exploring the connection between contexts, socio-scientific issues and fundamental values				
9)	Design and preparation of a lesson using contexts				
10)	Discussion about aspects of cultural diversity that are relevant to science / math instruction				
11)	Exploration of the cultural roots of Science and Mathematics and the impact on our daily teaching				
12)	Discussion of ways to address cultural differences effectively and possible drawbacks				



Your Daily School Life

7. Thinking about your own daily school life, please indicate the extent to which you agree or disagree with each of the following statements.

		Strongly disagree	Disagree	Agree	Strongly agree
22)	During class I do not have enough time to discuss social relevant contexts.				
23]	I have not enough time for preparing student-centered lessons.				
24)	I do not incorporate inquiry-based learning, because it is often disrupted by students who lack discipline.				
25)	Some students with behavior problems make it difficult to carry out inquiry-based learning.				
26	In my classes, students differ greatly in their cognitive abilities.				
8.	To what extent do you agree with the following statements?				
	I feel confident that	Strongly disagree	Disagree	Agree	Strongly agree
1)	I can design activities that allow students of diverse ability levels to test out their own ideas.				
2)	I am able to help students of a wide range of abilities to see the relevance of the content to learn.				
3)	I can incorporate issues relevant to society in my teaching.				
4)	I can facilitate classroom discussions in which even low-achieving students can engage.				
5)	I can develop teaching activities addressing issues relevant to society.				
6)	I can use inquiry-based activities to engage students in dealing with issues relevant to society.				
7)	I can design learning activities situated in different cultural contexts.				
8)	I can use inquiry-based activities to engage all my students in learning.				
9)	I can plan practical / modelling activities that support all students in their learning.				
10)	I can adapt my teaching to suit students' different cultural background.				
11)	I can build on students' cultural background in my teaching.				
12)	I can facilitate classroom discussions about issues relevant to society.				





9. To what extent do you **agree** with the following statements?

		Strongly disagree	Disagree	Agree	Strongly agree
1)	Classroom activities have to account students' cultural backgrounds.				
2)	Situating instruction in every day-life contexts can help engage all students in learning.				
3)	Science and math instruction needs to address issues relevant to society to foster students' values.				
4)	Using different cultural approaches support learning for all students.				
5)	Encouraging students to explain their own ideas can support students with different ability levels in learning.				
6)	Inquiry-based activities are well suited to support all students in their learning.				
7)	Collaborative activities support an exchange between students of different cultural backgrounds.				
8)	Using contexts relevant to society allows students to develop deeper understanding.				
9)	Instruction needs to provide students with opportunities to discuss issues relevant to society.				
10)	Situating activities in contexts relevant to society will help improve students' ability to make justified decisions.				
11)	Having students carry out practical / modelling activities can provide an opportunity to learn for students of all ability levels.				
12)	Having students design their own experiments / investigations creates learning opportunities for all students.				



10. How often do the following activities **take place** in your lessons?

	In my teaching	Never or hardly ever	Some lessons	Most lessons	Almost every lesson
1)	I show the students how this subject is relevant to society.				
2)	the students spend time doing practical activities.				
3)	I use a variety of contexts to engage students with diverse abilities.				
4)	I engage as many students as possible in discussing their own ideas with each other.				
5)	I relate to the cultural background of my students.				
6)	my students discuss controversial issues relevant to society.				
7)	I provide different levels of support to students of different ability levels as they do practical activities.				
8)	I address cultural values and expectations of students.				
9)	I help my students to understand the world outside school.				
10)	the students do experiments/ investigations/ modelling by following my instructions.				
11)	I use contexts to promote fundamental values (e.g. democratic values).				
12)	the students are involved in class debate or discussions.				
13)	the students have the chance to choose their own experiments/investigations.				
14)	the students are given opportunities to explain their ideas.				
15)	I allow every student to define their own problem-solving strategies and develop their own explanation.				
16)	the students do experiments/ investigations to test out their own ideas.				
17)	the students design their own experiments/ investigations.				
18)	I explain the relevance of this subject to our daily lives.				
19)	I use contexts relevant to society.				
20)	I use contexts from different cultures.				
21)	the students have discussions about the topics.				
22)	the students draw conclusions from experiments/ investigations/ modelling they have conducted.				

Thank you for your support!!!







2.3 Appendix 3: Information for teachers

Information for Teachers

Dear Teachers,

Thank you very much for your interest in participating in the students' survey. This survey is intended for scientific and evaluative purposes only. We try to investigate to which extend the content of the CPD course you attended has an impact on your students. We do not aim to evaluate your instructions or the answers of your students specifically but to get a holistic picture of science and math teachers across Europe. To achieve this goal, we rely on your support, so thank you again!

This document should give you a detailed description, what you should do with the student questionnaires.

- Please get the consent from students' parents to participate in the study. Include those consents in a separate envelope.
- Please plan a lesson, where you have about <u>15 minutes of spare time at the end of the</u> lesson.
- Assure to your students, that you will not look at individual answers and that all information will be handled confidently and anonymously. It is voluntary for the students to participate.
- Hand out all questionnaires and allow the students to answer all questions in private.
- In order to match your students' perception with your own evaluations, please tell your students your code:
 - o first letter of your first name
 - o first letter of your mother's first name
 - o second letter of your mother's first name
 - Day of your birthday
- Collect all questionnaires in an envelope.
- Please fill in the following information and get everything back to your MaSDiV contact person.

	day	month
Please enter today's date		
Grade Level		l







2.4 Appendix 4: Student-Questionnaire

Dear Student,

With this survey, we would like to get to know your opinion on how you feel inside the classroom. With your answers, you will help us to better understand your science and mathematics instruction. Be assured that all your answers will be handled confidentially and processed anonymously. Thanks for your effort!

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4. Thinking about the lessons with your teacher: to what extend do you agree with the following statements?

	During class	Strongly disagree	Disagree	Agree	Strongly agree				
1)	I have the opportunity to deal with interesting tasks or contents.								
2)	I have the opportunity to explore new topics by myself.								
3)	my achievements get recognized.								
4)	I feel valued.								
5)	I am encouraged to work independently.								
6)	I have the feeling to belong there.								
7)	I can choose by myself how I want to work.								
8)	I have the feeling that other students would help me, if necessary.								
9)	I feel understood by other students.								
10)	I feel respected.								
11)	my teacher tells me, what I can do better.								
12)	my teacher keeps me informed about my progress.								
13)	I get praises for good achievements.								
14)	other students in class treat me like a colleague.								
15)	I feel accepted.								
5. Thinking about the lessons with your teacher: please indicate how you feel about the following statements.									
	When I am in this classroom	Strongly disagree	Disagree	Agree	Strongly agree				
1)	our teacher makes lessons exciting.								

	When I am in this classroom	Strongly disagree	Disagree	Agree	Strongly agree
1)	our teacher makes lessons exciting.				
2)	our teacher can even make dry material interesting.				
3)	I enjoy acquiring new knowledge.				
4)	our teacher can get the class really excited.				
5)	I am happy dealing with problems.				
6)	I generally have fun when I am learning.				
7)	I am interested in learning.				





6. Please indicate how much these statements apply to your teacher's instructions on average.

	In our lessons	Never or hardly ever	Some lessons	Most lessons	Almost every lesson
1)	our teacher shows us how this subject is relevant to society.				
2)	we do practical activities.				
3)	our teacher uses a variety of real-life situations or problems to motivate us all.				
4)	our teacher gives everybody the chance to speak in a discussion.				
5)	our teacher relates to our cultural backgrounds.				
6)	we discuss controversial issues relevant to society.				
7)	our teacher provides the support we need when we do practical activities.				
8)	our teacher addresses our cultural values and expectations.				
9)	our teacher helps us to understand the world outside school.				
10)	we do experiments/ investigations/ modelling by following our teachers' instructions.				
11)	our teacher uses real-life problems to discuss topics like freedom, equity or democracy.				
12)	we are involved in class debate or discussions.				
13)	we have the chance to choose our own experiments/ investigations.				
14)	we are given opportunities to explain our ideas.				
15)	our teacher allows every student to develop their own solution and explanation.				
16)	we do experiments/ investigations to test out our own ideas.				
17)	we design our own experiments/ investigations.				
18)	our teacher uses real-life situations or problems.				
19)	our teacher explains the relevance of this subject to our daily lives.				
20)	our teacher uses real-life situations or problems from different cultures.				
21)	we have discussions about topics.				
22)	we draw conclusions from our own experiments / investigations.				

Thank you for your support!!!



